

Application No.: 10/816,153
 Docket No.: PE0669USDIV1

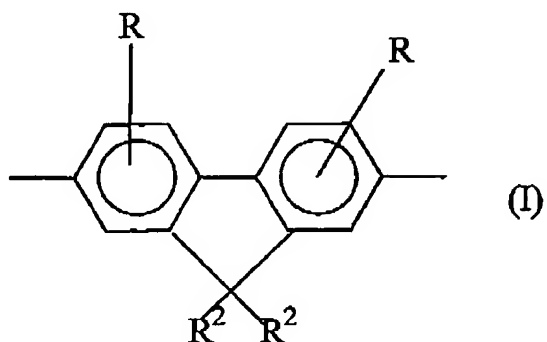
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Listing of Claims

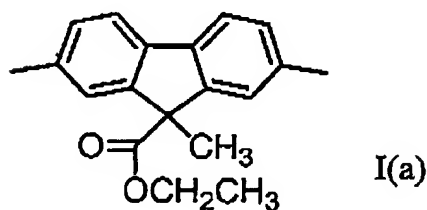
1-19 (canceled).

20. (currently amended) A process for preparing fluorene polymers having perfluoroalkyl groups, the steps comprising:

forming a polymer having at least one first monomeric unit having a Formulae I and I(a)

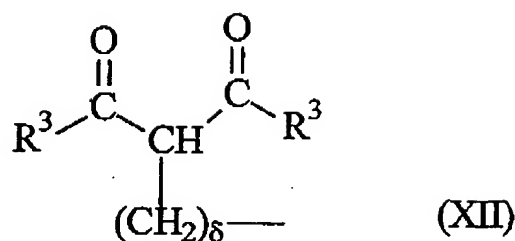


where:



R is a substituent on a carbon atom in an aromatic ring, which can be the same or different at each occurrence and is selected from hydrogen, alkyl, aryl, heteroalkyl, heteroaryl, F, -CN, -OR¹, -CO₂R¹, -C_ψH_θF_λ, -OC_ψH_θF_λ, -SR¹, -N(R¹)₂, -P(R¹)₂, -SOR¹, -SO₂R¹, -NO₂, and beta-dicarbonyls having Formula XII;

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or

adjacent R groups together can form a ring selected from 5-membered cycloalkyl, 6-membered cycloalkyl, 5-membered aryl, 6-membered aryl, 5-membered heteroaryl and 6-membered heteroaryl, such that:

R¹ is a substituent on a heteroatom which can be the same or different at each occurrence and is selected from alkyl, aryl, heteroalkyl and heteroaryl; and

ψ is an integer between 1 and 20, and θ and λ are integers satisfying Equation A1 below:

$$\theta + \lambda = 2\psi + 1; \quad (\text{Equation A1});$$

R² is a substituent on a carbon atom not in an aromatic ring, which can be the same or different at each occurrence and is selected from hydrogen, alkyl, aryl, heteroalkyl, heteroaryl and -C_ψH_θF_λ,

R³ is hydrogen, alkyl, aryl, heteroalkyl and heteroaryl;

δ is 0 or an integer from 1 to 12; and

~~with the proviso that the polymer contains at least one R substituent with the formula~~

~~-C_ψF_{2ψ+1};~~

treating the polymer with a perfluoroalkylating reagent selected from (i) a perfluoroalkyl iodide and (ii) a perfluoroalkylsulfonyl chloride in the presence of a ruthenium(II) catalyst;

with the proviso that, after treating the polymer with the perfluoroalkylating reagent, the polymer contains at least one R substituent with the formula -C_ψF_{2ψ+1}.

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- 21 (new). The process of claim 20, wherein ψ is an integer from 1-12.
- 22 (new). The process of claim 20, wherein at least one R is H, C₆-C₁₂ alkyl, C₆-C₂₀ aryl or C₂-C₂₀ heteroaryl.
- 23 (new). The process of claim 20, wherein at least one R is C₁-C₃₀ alkyl.
- 24 (new). The process of claim 20, wherein at least one R is C₁-C₃₀ heteroalkyl.
- 25 (new). The process of claim 20, wherein at least one R is C₆-C₂₀ aryl.
- 26 (new). The process of claim 20, wherein at least one R² is C₁-C₃₀ alkyl.
- 27 (new). The process of claim 20, wherein at least one R² is C₁-C₃₀ heteroalkyl.
- 28 (new). The process of claim 20, wherein at least one R³ is alkyl or aryl.
- 29 (new). The process of claim 20, wherein at least one δ is 0.
- 30 (new). The process of claim 20, wherein the ruthenium (II) catalyst is dichlorotris(triphenylphosphine)ruthenium(II).
- 31 (new). The process of claim 20, wherein a perfluoroalkylating reagent is a perfluoroalkyl iodide having 1 to 12 carbon atoms.
- 32 (new). The process of claim 20, wherein a perfluoroalkylating reagent is a perfluoroalkylsulfonyl chloride having 1 to 12 carbon atoms.